

3. Increasing genetic gain from Artificial Insemination

An easy way to increase genetic gain for a herd is through mating cows by Artificial Insemination (AI) using semen from proven sires in the Top Australian Profit Ranking (APR) list.

Add to this an appropriate, well managed AI program and dairy managers have the opportunity to produce a greater number of well bred, genetically superior female calves in a faster time – without compromising the herd's calving pattern.

Best Practice

Taking into account factors such as pasture, labour and financial resources, along with the business' objectives, decide on the number of rounds of AI to be performed. This decision will also be determined by the desired length of the calving program and the number of opportunities maiden heifers and cows will be given to conceive by AI.

In an enterprise which is well resourced, extending the herd's AI program with an extra round or two before introducing mop-up bulls will ensure the maximum numbers of cows are sired by highly ranked APR sires. On average, AI sires with higher APRs will deliver more income as a result of greater progeny productivity, so give cows the best opportunity to get in calf using AI, before introducing mop-up bulls.

A sound heat synchronization program can assist managers to increase their heat detection rates by compacting it into manageable time periods. If using 'ovsynch' (hormone treatment protocol to induce ovulation), then submission rates will be high as all cows are submitted for a timed AI program. All other heat synchronization programs still require good heat detection methods with non-cycling cows sought out quickly for examination.

In many WA enterprises, heifers are mated one cycle before cows. When cows are cycling concurrently with heifers, the demands on staff during the peak oestrous time can mean heat cycles may be missed. In order to maximise submission rates and ensure the calving pattern is not compromised, use heat detection aids together with observation skills for best results.

Getting Optimum Results

Good planning will provide optimum results. Selecting dates to start and stop mating and measuring submission rates are two methods to improve the reproductive performance of the herd.

Other factors to consider and act on are:

- ◆ Pre-mating vet check – record heats one month prior to mating; if a cow does not appear to be cycling ensure a vet check is carried out before the AI program begins. Also make a record of those cows that experienced assisted calvings, retained foetal membranes, etc. It is good practice to have these cows vet checked prior to mating.
- ◆ Rectal pregnancy testing (as early as possible) will provide data to calculate the in-calf rate by

[cont'd over]

Success Story

The Depiazzi family partnership runs 250 cows, with a system of batch calving, using proven AI sires with the emphasis on choosing animals that suit their grazing system.

"We are looking to breed robust, durable cows ideally from bulls that rank in the top 20 percent for APRs," Phil Depiazzi said.

"We usually AI our heifers twice using a combination of conventional and sexed semen and then run them with the mop-up bull. Cows are given three to four straws depending on each cow's breeding and production potential. Again, non-pregnant cows are covered with the mop-up bull.

I am a big fan of oestrous alerts, together with strategic use of progesterone – heat detection is where the big gains and losses are to be made in the mating program."



identifying heifers that are pregnant and providing estimates on the time of conception in an AI managed herd. Animals identified as non pregnant can be vet checked again and included in the next mating program.

- ◆ Sound AI techniques – correct storage and handling of semen, together with patience, practice and proper hygiene, will contribute to a successful AI program.
- ◆ Body condition score – aim for body condition score targets of 4.5 to 5.5 and ensure cows maintain or gain body condition from the beginning of the mating program.
- ◆ Identify breeding objectives – group together the sires that meet your herd breeding objectives and rank them in order, selecting sires with traits that will contribute to overall herd improvement.
- ◆ Avoid inbreeding – select sires that don't have close ancestors in common. Inbreeding reports are available through local herd improvement service providers.
- ◆ Good record keeping is important – include calving details; the date and number of inseminations; pregnancy test results; cows that were culled or died; and natural matings. Herd recording packages may also be used to detect problems and provide information for programs like InCalf.

Heat Detection Strategies

Choice of heat detection aid and strategy to increase heat detection rates is unique to each herd manager but will determine overall success. A good combination of both will deliver optimum results.

- ◆ Tail paint – least expensive but must be diligently implemented.
- ◆ Heat mount detectors – easy to read, require less maintenance and can improve heat detection rates.
- ◆ Fitting vasectomised bulls or hormone treated steers with raddles.
- ◆ Activity meters (including pedometers) – useful as data can be integrated into computerised herd information systems.
- ◆ Heat synchronization programs – require consultation with a veterinarian before deciding on a strategy, but options include prostaglandin and intravaginal devices such as 'ovsynch' (ovulation synchronization protocol).

Disclaimer:

Dairy Info is published by Western Dairy Incorporated. Material contained in Dairy Info must not be reproduced in whole or in part or in any manner whatsoever without the written permission of the copyright holders and the editor. All reasonable efforts have been made to trace copyright holders of material published. Western Dairy accepts no responsibility for and makes no representations whether express or implied as to the accuracy or reliability in any aspect of any material in this publication. Western Dairy is not liable for any loss or damage (including direct, consequential or economic) which may result directly or indirectly from information in this publication.

© Western Dairy Incorporated

The Benefits of Using Proven AI Sires

AI bred cows offer producers greater profits from the production of higher milk solids and more lactations. In fact, AI sires are selected and progeny tested for genetic traits on which they are objectively measured and ranked by way of Australian Profit Rankings and are, on average, more profitable than natural service bulls.

Recent research at the Victorian Department of Primary Industries indicated a dairy cow bred through AI is on average \$53 more profitable every year than its naturally-bred counterpart sister. In a 400 cow herd, this equates to \$21,000 in extra profit each year!

In order to assist producers choose suitable sires for their herd, ADHIS publishes an Australian Profit Ranking (APR) for all sires sold through semen suppliers in Australia. Higher APR sires increase profits by boosting milk solids production (kilograms fat/protein); having greater survival (longevity) rates; increased workability; higher fertility; and lower cell counts. High APR sires will increase profits from these traits more than lower APR sires.

Often improving daughter reproductive performance is a breeding objective for farmers. Due to the relatively low heritability of daughter fertility, improving fertility is much slower than improving a trait like protein production. The daughter fertility Australian Breeding Value (ABV) is expressed as a percentage more or less than the average of 100. For example, a bull with a daughter fertility ABV of 105 is 4% greater for daughter fertility than a bull with a daughter fertility of 101.

In Conclusion

A herd's genetic gain can be increased more rapidly by using proven AI sires with higher APRs. This can improve milk production and with good export markets available to WA farmers, dairy managers can benefit greatly from concentrating their efforts on boosting heifer numbers from within their herd.

An optimum AI program will reduce the need for mop-up bulls whilst delivering more profitable replacement heifers. The costs associated with selecting top APR sires should be measured against the overall benefit to production, as well as daughter fertility.

Further information:

Local veterinarians, semen suppliers and the local herd test centre are a recommended source of information.

The Australian Dairy Herd Improvement Scheme (ADHIS) is recommended for specific detail on high genetic merit sires and on the bull proofing systems – an understanding of which will assist in breeding decisions.



Funded by
Dairy Australia
and your
Regional
Development
Program

